

ENERGIZE MISSOURI HOMES

MISSOURI DEPARTMENT OF NATURAL RESOURCES



MISSOURI
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NATURAL RESOURCES



HOMEOWNER UPGRADES and GEOTHERMAL

PROGRAM GUIDELINES

AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

STATE ENERGY PROGRAM

MISSOURI DEPARTMENT OF NATURAL RESOURCES
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I. Introduction

The Missouri Department of Natural Resources (the department) protects, preserves and enhances Missouri's natural, cultural and energy resources. As the state energy office, the department's Division of Energy is a non-regulatory state entity that works to protect the environment and stimulate the economy through energy efficiency and renewable energy resources and technologies. To support the development of the energy efficiency and conservation industry, the department provides information, resources and financial incentives to implement energy efficiency projects.

In June 2009, the U.S. Department of Energy, or DOE, approved Missouri's application under the U.S. DOE's State Energy Program for \$57,393,000 in Recovery Act funding for energy efficiency and renewable energy programs.

The department has set-aside a portion of SEP funds for a residential program which is marketed under the umbrella name *Energize Missouri Homes*. Under *Energize Missouri Homes*, the department has created the Homeowner Upgrades and Geothermal Program. These program procedures provide guidance to interested homeowners on how the Homeowner Upgrades and Geothermal Program will be implemented.

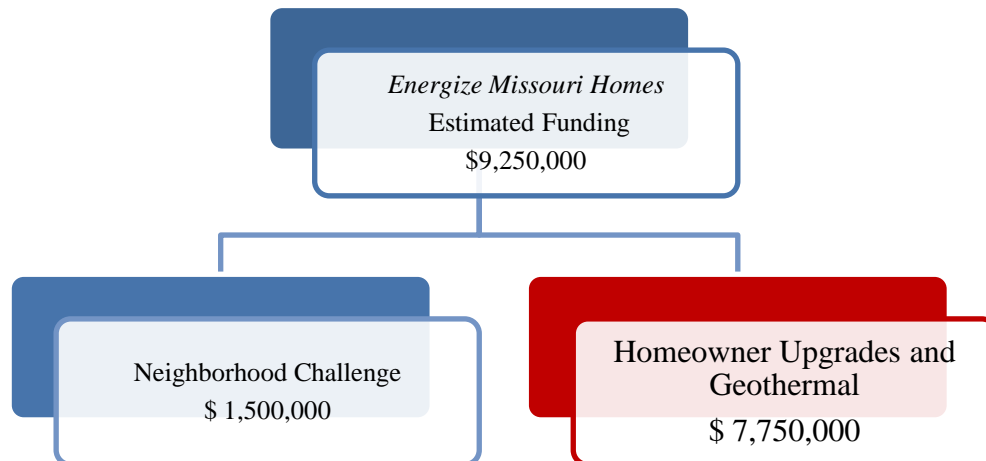


Figure 1. *Energize Missouri Homes* Estimated Funding Allocation.

1. American Recovery and Reinvestment Act of 2009

On Feb. 17, 2009, President Obama signed into law the American Recovery and Reinvestment Act of 2009 (Public Law 111-5). The stated purposes of the Recovery Act are to preserve and create jobs; promote economic recovery; assist those most impacted by the recession; provide investments needed to increase economic efficiency by spurring technological advances in science and health; invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits; and to stabilize state and local government budgets.

2. Homeowner Upgrades and Geothermal Program Overview

The Missouri Department of Natural Resources created *Energize Missouri Homes* Homeowner Upgrades and Geothermal Program to distribute American Recovery and Reinvestment Act funding received from the U.S. DOE. Under this program, more than \$7 million in rebates will be provided to owners of single-family homes located in Missouri to receive energy audits and implement whole-house energy saving

measures identified through the audit. Three rebate tiers are available. A homeowner may qualify for a rebate between \$2,000 and \$17,000 depending on the tier achieved, the selected upgrades, and the total cost of implementing the upgrades. A rebate is also available for 100 percent of the cost of the home energy audit, up to \$500.

The Homeowner Upgrades and Geothermal Program will be administered locally by program aggregators, which are organizations that have been awarded grants by the department via a competitive application process. Program aggregators are regionally based organizations across the state and will act as the local contact for homeowners participating in the program; a map of program aggregators will be publicly available at <http://www.dnr.mo.gov/transform/energizemissourihomes.htm>.

3. Program Goals

The purpose of the Homeowner Upgrades and Geothermal Program is to provide Missouri homeowners with the opportunity to realize measurable energy savings which will result in reduced energy costs and improved comfort of the home. The specific goals of the Homeowner Upgrades and Geothermal Program include reducing total energy use, decreasing fossil fuel emissions, creating and retaining jobs, spurring economic growth, and improving the energy efficiency of Missouri homes.

4. Definitions

‘Appliance’ – equipment which accomplishes or assists in the completion of routine housekeeping tasks, including but not limited, to cooking, food preservation, or cleaning. Appliance also refers to any entertainment system or unit, typically powered by electricity. Examples of appliances include, room air conditioners, dishwashers, clothes dryers, freezers, refrigerators, stoves, washing machines, microwave ovens, televisions, and music systems.

‘Contractor’ – the individual or company that installs the energy efficiency measures.

‘The department’ – the Missouri Department of Natural Resources.

‘Eligible participant’ – a resident of Missouri that is an owner-occupant of an existing residential building.

‘Eligible project costs’ – the costs incurred by the homeowner, and not paid for by other rebate program funds, for equipment, materials and labor directly related to removing old equipment and installing new equipment.

‘Energy efficiency’ – measures that reduce the amount of electricity required to achieve a given end use.

‘*Energize Missouri Homes* qualified auditor’ – an auditor that has received qualification from the department and is trained to understand the Homeowner Upgrades and Geothermal Program rebate levels, eligibility requirements, procedures and all applicable terms and conditions of the program.

‘Geothermal system’ – a system that uses the thermal energy of the ground or groundwater to provide residential space conditioning and/or domestic water heating. A geothermal system eligible to receive a rebate under the Homeowner Upgrades and Geothermal Program must meet the tier 2 ENERGY STAR® energy efficiency requirements for a geothermal heat pump. The tier 2 requirements can be found at http://www.energystar.gov/index.cfm?c=geo_heat.pr_crit_geo_heat_pumps (Table 2: Tier 2 Requirements).

‘Home energy audit’ – an inspection, survey and analysis of energy flows in a home with the objective of understanding the energy dynamics of the system and identifying opportunities to reduce the home’s energy use.

‘New construction or major renovation’ – construction activities that modify the layout and/or footprint of an existing residential structure and that will affect the baseline energy use of the home.

‘Primary place of residence’ – the single-family home should be demonstrably intended to be the particular individual's primary place of residence, for purposes of:

- Mailing address.
- Income tax (e.g. forms or returns).
- Voting.
- Municipal/school taxes.
- Telephone listing.

‘Program aggregator’ or ‘aggregator’ – an organization that serves as a local point of contact for homeowners in a specific region of the state

‘Project completion date’ – the date that all grant tasks are complete and equipment is installed and operational.

‘REM/Design™ software’ – a home energy analysis tool developed by the Architectural Energy Corporation. REM/Design™ software will be used by *Energize Missouri Homes* qualified auditors performing work under this program.

‘Single-family home’ – a detached single-family dwelling designed or intended for occupancy by one person or by one family.

II. Eligibility

1. Eligible Program Participants

Eligible program participants are residents of Missouri that are owner-occupants of existing residential buildings.

2. Eligible Projects

Eligible projects include energy audits performed by an *Energize Missouri Homes* qualified auditor and energy efficiency upgrades that meet minimum performance levels. In addition, eligible projects must be physically located in the state of Missouri and must occur at the owner's primary place of residence.

The program applies to existing residential buildings of four dwelling units or less. In order to qualify for eligibility, applicants must own the entire building and occupy at least one dwelling unit of the building.

Homeowners will be required to sign and certify on the Audit Summary Form that the homeowner owns and lives in the audited property and that the property serves as his or her primary place of residence.

3. Ineligible Program Participants

The following are not eligible program participants:

- A. Homeowners who are not Missouri residents.
- B. Owners of homes currently in construction or undergoing major renovations.
- C. Owners applying for homes that do not serve as their primary residence.

4. Ineligible Projects

The following are not eligible projects:

- A. Projects that took place before an energy audit was performed by an *Energize Missouri Homes* qualified auditor and prior to receiving approval on an Audit Summary Form.
- B. Projects that do not achieve energy savings.
- C. Projects for swimming pools or mobile homes.
- D. Projects that increase the energy load of a home.
- E. Projects that utilize funds for buying or leasing property.
- F. Projects involving fuel switching or demand management that do not achieve net energy savings.
- G. Projects involving appliance, as defined in section I.4 of these program guidelines, upgrades or replacements.
- H. Projects involving installation of renewable energy systems.
- I. Projects at buildings of over four dwelling units.
- J. Non-residential or mixed occupancy buildings.
- K. New construction, building expansion and major renovation projects.
- L. Projects that do not comply with the National Historic Preservation Act.
- M. Projects that do not comply with the National Environmental Policy Act.
- N. Projects that will not be completed on or before Jan. 31, 2012.

5. National Historic Preservation Act

All homeowner projects must meet federal cultural resource review requirements under Section 106 of the National Historic Preservation Act or they will not be eligible for program rebates. Projects involving a building or structure included in, or eligible for inclusion in, the National Register of Historic Places will require additional documentation and review. Homeowners may not begin project work until after receiving written notification from the department that the proposed project is in compliance with National Historic Preservation Act requirements.

6. National Environmental Policy Act

The National Environmental Protection Act of 1970, as amended (42 U.S.C. 4371, *et seq.*) requires federal agencies to consider the potential environmental impacts of their proposed actions. The U.S. DOE has issued a categorical exclusion that covers most energy efficiency retrofits to existing buildings and geothermal horizontal/vertical, ground, closed-looped systems that are 5.5 tons of capacity or smaller. Any homeowner projects that do not fall within the categorical exclusions will require additional review. Homeowners may not begin project work until after receiving written notification from the department that any National Environmental Policy Act restrictions have been lifted from the proposed project.

III. Program Procedures

1. Key Program Players

The department has identified the following key players involved in the Homeowner Upgrades and Geothermal Program:



Figure 2. Key Program Players

Missouri Homeowners

Eligible homeowners in Missouri are the ultimate beneficiary of the Homeowner Upgrades and Geothermal Program funds. Those that participate in the program will reduce their energy consumption and improve the comfort and value of their homes. As this is a rebate program, homeowners must provide payment to auditors and contractors upfront, and then submit necessary program documentation to receive a rebate. This program documentation includes:

- Audit Summary Form.
- National Environmental Policy Act/National Historic Preservation Act (NEPA/NHPA) Form.
- Acknowledgment of Program Terms and Conditions.
- Rebate Request Form.
- W-9 Form.
- Receipts and paid invoices.

It is recommended that homeowners maintain copies of all paperwork for their own records.

Energize Missouri Homes - Qualified Auditors

Energy audits performed under the Homeowner Upgrades and Geothermal Program must be performed by an *Energize Missouri Homes* qualified auditor. *Energize Missouri Homes* qualified auditors will conduct energy audits and assist Missouri homeowners in identifying cost-effective, energy saving measures. *Energize Missouri Homes* qualified auditors will also help Missouri homeowners submit the first round of required paperwork in order to secure a reservation of funds.

In order to participate in the Homeowner Upgrades and Geothermal Program, auditors will be required to attend a one-day training session provided by the department, complete an in-class assessment and submit a field assessment within 15 days of attending the training session.

All *Energize Missouri Homes* qualified auditors are required to use REM/Design™ software to model a home's energy use and to provide homeowners with all the files and reports necessary to complete an Audit Summary Form. These documents include:

- REM/Design™ BLG files – baseline and proposed.
- Performance Summary Report.
- Improvement Analysis Report.

In addition, the *Energize Missouri Homes* qualified auditor will assist the homeowner in completing an Audit Summary Form and will attest to audit findings by providing a signature on this form.

The department maintains a directory of *Energize Missouri Homes* qualified auditors at <http://www.dnr.mo.gov/transform/energizemissourihomes.htm>.

Contractors

Missouri contractors, or those that offer services in the state of Missouri, will assist homeowners in completing their desired energy efficiency upgrades. All contractors must have any necessary licenses, permits, or insurance required at the local, state or federal level to perform the homeowner's upgrades. No additional, program-specific certification is required to perform work for the Homeowner Upgrades and Geothermal Program, and homeowners may select the contractor of their choice.

Program Aggregators

Six organizations across the state were selected through a competitive process to act as program aggregators, thereby serving as regional program contacts. Program aggregators are responsible for assisting the department with marketing and outreach activities, providing technical assistance to homeowners and auditors, processing rebate requests and issuing rebates to homeowners.

The six organizations that will serve as program aggregators are identified in the map below.

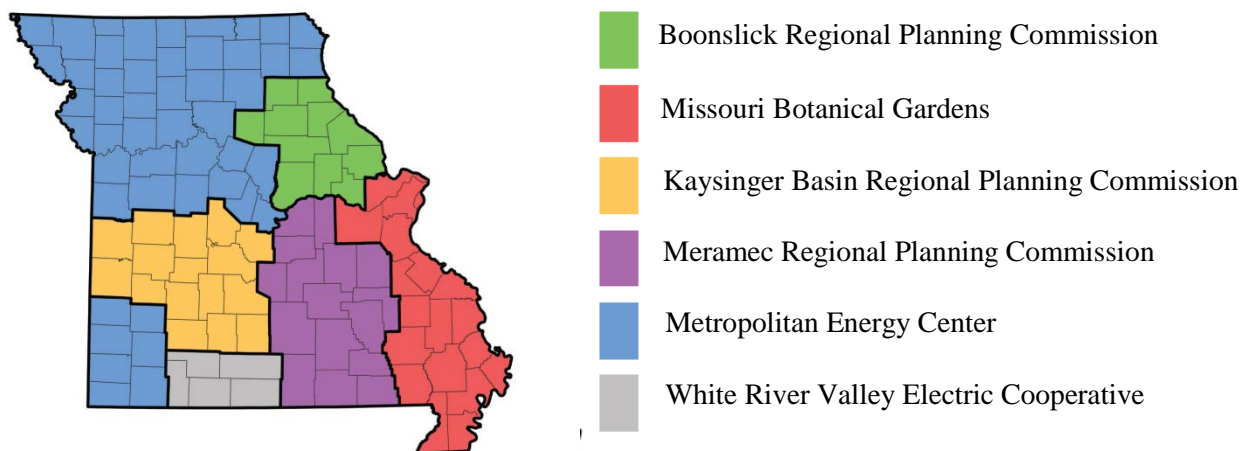


Figure 3. Homeowner Upgrades and Geothermal Program Aggregator Territories.

Program aggregators serve as the homeowner's local point of contact. All paperwork the homeowner is required to submit must be sent to the program aggregator representing that homeowner's county.

Upon receipt of program documentation, the program aggregators will review and approve homeowner forms, process rebate requests, and send checks to homeowners after projects are completed. Program

aggregators also have the task of determining the eligibility of the homeowner, the eligibility of the proposed project, the project’s compliance with the National Environmental Policy Act and the applicability of the National Historic Preservation Act.

2. Rebate Levels

The Homeowner Upgrades and Geothermal Program rebate levels are determined by the amount of energy savings resulting from implementation of energy efficiency upgrades. The energy savings are measured from an established baseline identified by an energy audit conducted at the beginning of the process. If the homeowner decides to move forward with projects identified by the energy audit, then the homeowner is eligible to receive a rebate for the total cost of the audit up to \$500. If a homeowner does not move forward with implementation of recommended energy efficiency upgrades, the homeowner will not be eligible to receive rebates under the program and will have to cover the entire cost of the audit.

In addition to the audit rebate, the program establishes three different funding levels:

- If the homeowner achieves a minimum of 15 percent energy savings over the audited baseline, the homeowner is eligible to receive a rebate for up to 50 percent of eligible project costs, up to a total of \$2,000.
- If the homeowner achieves a minimum of 25 percent energy savings over the audited baseline, the homeowner is eligible to receive a rebate for up to 70 percent of eligible project costs, up to a total of \$7,000.
- If the homeowner installs a geothermal system that meets program requirements, the homeowner is eligible to receive a rebate for up to 50 percent of eligible project costs, up to a total of \$10,000.

Rebate levels are shown below in Figure 3.

Energy Audit	Rebate Level		
100 percent of cost, up to \$500	Rebate available only if the homeowner implements recommended energy efficiency projects.		
Upgrades	TIER I 15% Energy Savings	TIER II 25% Energy Savings	TIER III Geothermal System
Rebate	Up to 50 percent of eligible project costs	Up to 70 percent of eligible project costs	Up to 50 percent of eligible project costs
Maximum Rebate Amount	\$2,000	\$7,000	\$10,000

Figure 4. Homeowner Upgrades and Geothermal Program rebate levels.

Homeowners may apply for a rebate for Tier I and Tier III upgrades, or Tier II and Tier III upgrades in combination. In both of these situations, energy savings achieved by installing a geothermal system cannot count towards the energy savings required to receive a Tier I or Tier II rebate. If a homeowner chooses to apply under these two different Tiers, the EMH auditor must provide a REM/Design™ proposed model showing Tier I or Tier II upgrades only, and another REM/Design™ proposed model showing the Tier I or Tier II upgrades and the geothermal system in combination. Homeowners cannot apply for both Tier I and Tier II rebates.

Eligible project costs include the costs for equipment, materials and labor directly related to removing old equipment and installing new equipment. A qualified homeowner may perform the energy audit or the energy efficiency upgrades at his or her own home, however, the labor performed would not be eligible to receive a rebate from the department.

3. Geothermal System Requirements

A geothermal system eligible to receive a rebate under the Homeowner Upgrades and Geothermal Program must meet the ENERGY STAR® energy efficiency requirements for a geothermal heat pump as follows:

Product Type	Energy Efficiency Ratio (EER)	Coefficient of Performance (COP)
Water-to-Air		
Closed Loop Water-to-Air	16.1	3.5
Open Loop Water-to-Air	18.2	3.8
Water-to-Water		
Closed Loop Water-to-Water	15.1	3.0
Open Loop Water-to-Water	19.1	3.4
Direct Geexchange (DGX)		
Direct Geexchange (DGX)	16.0	3.6

Figure 5. Geothermal System Requirements

Source: ENERGY STAR® Tier Two requirements

http://www.energystar.gov/index.cfm?c=geo_heat.pr_crit_geo_heat_pumps

The following types of systems have been categorically excluded from National Environmental Policy Act review: 5.5 tons of capacity or smaller, horizontal/vertical, ground, closed-loop system. Any systems that do not meet these requirements will require further review by U.S. DOE.

4. Program Process

Step 1 – Energy Audit

The program process will begin with interested homeowners scheduling a home energy audit with an *Energize Missouri Homes* qualified auditor. The energy audit will help identify cost-effective energy efficiency measures including, but not limited to, air sealing, insulating, weatherstripping, upgrading heating and cooling equipment or installing a geothermal system.

The energy audit will result in several reports and models that identify the baseline energy use of the house, as well as recommended energy efficiency upgrades. Using these reports, the homeowner will discuss with the *Energize Missouri Homes* qualified auditor which upgrades the homeowner would like to implement in order to receive a program rebate. The *Energize Missouri Homes* qualified auditor will then provide the homeowner with a proposed model demonstrating the energy savings achieved through those selected measures. At this time, the homeowner and *Energize Missouri Homes* qualified auditor will be able to complete an Audit Summary Form, providing specific details about the selected upgrades as well as a required signature agreeing to abide by all program rules and procedures. The auditor must also provide the homeowner with the necessary files and documents from the REM/Design™ software as listed on the Audit Summary Form. Finally, the homeowner must complete the NEPA/NHPA form and sign the Acknowledgement of Program Terms and Conditions.

Once all forms are completed, the homeowner must submit all materials to the program aggregator that is responsible for the homeowner's region. The program aggregator will review the submittal, and if the project is considered eligible and NEPA/NHPA compliant, then the program aggregator will send a letter of approval to the homeowner demonstrating that the requested funds have been reserved for a period of six months.



Figure 6. Program Process - Energy Auditing.

Step 2 – Energy Efficiency Upgrades

Homeowners that receive a letter of approval from their program aggregator may move forward with their proposed projects and will have six months to complete the proposed upgrades identified on the Audit Summary Form and submit a request for rebate. If the project is not completed within this six month period, then the homeowner will lose the funds that had been reserved for this project.

The homeowner must complete all the upgrades as listed on the Audit Summary Form. If a homeowner identifies that these upgrades cannot be completed because the project cost is higher than anticipated or for any other reason, then the homeowner must contact their *Energize Missouri Homes* qualified auditor to re-assess the proposed model of their home and select upgrades that can be completed while still achieving Tier I, II, or III energy savings. In this instance, the homeowner and auditor must re-submit the Audit Summary Form and all revised materials to the program aggregator. When re-submitting the Audit Summary Form, the homeowner is allowed to change Tier levels and apply for a different rebate amount if necessary.

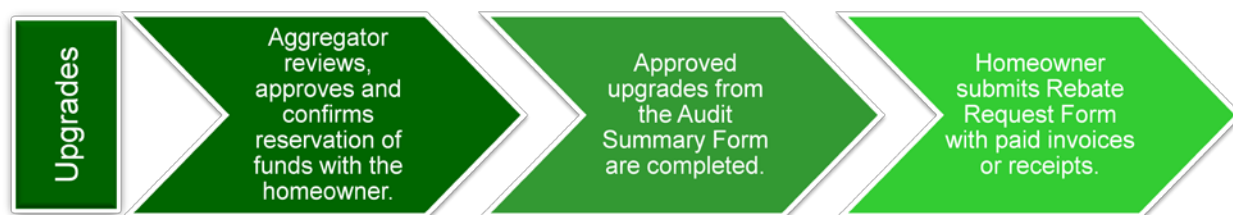


Figure 7. Program Process - Energy Efficiency Upgrades.

Once the upgrades identified in the Audit Summary Form are complete, the homeowner will complete a Rebate Request Form and submit to the program aggregator. Along with the Rebate Request Form, the homeowner must submit all project-related paid invoices and receipts, as well as a completed W-9 tax form. The W-9 tax form is required given that all program funds are counted as taxable income to the homeowner.

Step 3 – Rebate

The program aggregator will review the Rebate Request Form and all attachments to ensure that the upgrades were completed as stated in the Audit Summary Form and in accordance with program requirements. If the rebate request is approved, the program aggregator will send a check for the full rebate amount to the homeowner. Homeowners must allow six to eight weeks to pass before receiving their rebate check.



Figure 8. Program Process - Rebate.

The department will be monitoring up to 10 percent of homes that receive funding for upgrades through this program. If a homeowner is selected for a monitoring visit, the homeowner must grant department representatives access to the home in order to measure and verify project completion. Additionally, those homeowners selected for a monitoring visit will not receive payment until after the monitoring visit is complete.

5. Additional Information

Interested homeowners are encouraged to contact *Energize Missouri Homes* for additional information:

Energize Missouri Homes
877-610-0834
EMH.upgrades@shawgrp.com